

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Amendments to the Claims:**

Claims 1-32 (Cancelled)

Claim 33 (New) A method for measuring anesthesia parameters from the head of a patient, the method comprising the steps of:

- providing a base element of flexible material, the base element containing an array of at least three electrodes, an optical sensor for monitoring substances in the patient's tissues, and a connector connecting the at least three electrodes and the optical sensor to a patient monitor;

- placing the base element on the patient's head so that a first electrode in the array of electrodes is located between the eyebrows of the patient at about the centerline of the forehead;

- using at least two of the electrodes in the array of electrodes to measure electroencephalography and muscle activity; and

- using the optical sensor to measure substances in the patient's tissues.

Claim 34 (New) The method of claim 33 comprising the steps of:

- placing the base element on the patient's head such that second and third electrodes in the array of electrodes are positioned just posterior to the lower part of the pinna and just anterior to the tragus; and

- utilizing the second and third electrodes in the array of electrodes to stimulate a facial nerve and measure neuro muscular transmission.

Claim 35 (New) The method of claim 33 comprising the steps of:

- placing the base element on the patient's head such that a second electrode of the array of electrodes is located on the temple area between the corner of the eye and the

hairline, a third electrode of the array of electrodes is positioned above the eye and at the same vertical level as the first electrode in the array of electrodes, which is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and a fourth electrode of the array of electrodes is positioned below the eye for enhancing encephalography and muscle activity measurement; and

using the first, second, third electrodes to measure encephalography and muscle activity.

Claim 36 (New) The method of claim 35 comprising the step of:

using at least two of the first, second, third and fourth electrodes to measure neuro muscular transmission.

Claim 37 (New) The method of claim 33 comprising the steps of:

placing the base element on the patient's head such that a second electrode in the array of electrodes is located on one of locations F2 and F4 of the International 10-20 system, a first electrode in the array of electrodes is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose and a third electrode is adapted for location below the eye for enhancing muscle activity measurement; and

using the first and second electrodes and a fourth electrode in the array of electrodes to measure encephalography and muscle activity.

Claim 38 (New) The method of claim 37 wherein the fourth electrode of the array of electrodes is positioned on the temple area between the corner of the eye and the hairline of the patient when the base element is placed on the patient's head.

Claim 39 (New) The method of claim 34 wherein the optical sensor is positioned on the forehead of the patient when the base element is placed on the head of the patient.

Claim 40 (New) The method of claim 34 wherein the optical sensor is positioned on the root of the nose of the patient when the base element is placed on the head of the patient.

Claim 41 (New) The method of claim 34 wherein the optical sensor is positioned on the ear of the patient when the base element is placed on the head of the patient.

Claim 42 (New) The method of claim 34 wherein the optical sensor is an SpO2 sensor.

Claim 43 (New) A method for measuring anesthesia parameters from the head of a patient, the method comprising the steps of:

- providing a base element of flexible material, the base element containing an array of at least three electrodes, an optical sensor for monitoring substances in the patient's tissues, a mechanical neuro muscular transmission sensor, and a connector connecting the at least three electrodes, the optical sensor, and the mechanical neuro muscular transmission sensor to a patient monitor;

- placing the base element on the patient's head so that a first electrode in the array of electrodes is located between the eyebrows of the patient at about the centerline of the forehead;

- using at least two of the electrodes in the array of electrodes to measure electroencephalography and muscle activity;

- using the optical sensor to measure substances in the patient's tissues; and

- using the mechanical neuro muscular transmission sensor to measure neuro muscular transmission.

Claim 44 (New) The method of claim 43 comprising the steps of:

- placing base element on the patient's head such that second and third electrodes in the array of electrodes just posterior to the lower part of the pinna and just anterior to the tragus to stimulate a facial nerve; and

using the mechanical neuro muscular transmission sensor and the second and third electrodes to monitor neuro muscular transmission.

Claim 45 (New) The method of claim 43 comprising the steps of:

placing the base element on the patient's head such that a second electrode of the array of electrodes is located on the temple area between the corner of the eye and the hairline, a third electrode of the array of electrodes is positioned above the eye and at the same vertical level as the first electrode in the array of electrodes, which is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and a fourth electrode of the array of electrodes is positioned below the eye for enhancing encephalography and muscle activity measurement; and

using the first, second, third electrodes to measure encephalography and muscle activity.

Claim 46 (New) The method of claim 45 wherein the mechanical neuro muscular transmission sensor is a piezoelectric sensor and comprising the steps of:

placing the base element on the patient's head such that the neuro muscular transmission sensor is located over one of the procerus, frontalis, corrugator or orbicularis muscle or a combination of these; and

using the mechanical neuro muscular transmission (NMT) sensor to record neuro muscular transmission stimulus.

Claim 47 (New) The method of claim 43 comprising the steps of:

placing the base element on the patient's head such that a second electrode in the array of electrodes is located on one of locations F2 and F4 of the International 10-20 system, the first electrode in the array of electrodes is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose and a third electrode is adapted for location below the eye for enhancing muscle activity measurement; and

using the first and second electrodes and a fourth electrode in the array of electrodes to measure encephalography and muscle activity.

Claim 48 (New) The method of claim 47 wherein the mechanical neuro muscular transmission sensor is a piezoelectric sensor and comprising the steps of:

placing the base element on the patient's head such that the neuro muscular transmission sensor is located over one of the procerus, frontalis, corrugator or orbicularis muscle or a combination of these; and

using the mechanical neuro muscular transmission (NMT) sensor to record neuro muscular transmission stimulus.

Claim 49 (New) The method of claim 43 wherein the optical sensor is positioned on the forehead of the patient when the base element is positioned on the head of the patient.

Claim 50 (New) The method of claim 43 wherein the optical sensor is positioned on the root of the nose of the patient when the base element is positioned on the head of the patient.

Claim 51 (New) The method of claim 43 wherein the optical sensor is positioned on the ear of the patient when the base element is positioned on the head of the patient.

Claim 52 (New) The method of claim 43 wherein the optical sensor is an SpO2 sensor.

Claim 53 (New) A sensor arrangement for measuring anesthesia parameters from the head of a patient, the sensor arrangement comprising:

a base element of flexible material, the base element containing

an array of at least three electrodes that are adapted to measure electroencephalography, muscle activity, and neuro muscular transmission;

an optical sensor for monitoring substances in the patient's tissues; a mechanical neuro muscular transmission sensor; and  
a connector connecting the at least three electrodes, the optical sensor, and the mechanical neuro muscular transmission sensor to a patient monitor.

Claim 54 (New) A method for measuring anesthesia parameters from the head of a patient, the method comprising the steps of:

providing a base element of flexible material, the base element containing an array of at least three electrodes, a connection to an optical sensor for monitoring substances in the patient's tissues, and a connector connecting the at least three electrodes and the optical sensor to a patient monitor;

placing the base element on the patient's head so that a first electrode in the array of electrodes is located between the eyebrows of the patient at about the centerline of the forehead;

using at least two of the electrodes in the array of electrodes to measure electroencephalography and muscle activity; and  
using the optical sensor to measure substances in the patient's tissues.